

CLAIMS

What is claimed is:

1. A submersible pump system, comprising:
a submersible pump having an pump inlet and a pump discharge outlet;
a pump distribution plate for positioning near the floor of a sump pit or tank, said pump distribution plate having at least one opening therethrough for receiving said pump inlet and having a bottom surface for orientation toward the floor of a sump pit or tank, and having guide members extending from said bottom surface arranged in relation to said at least one opening to facilitate solids entrainment by said submersible pump.
2. The submersible pump system of claim 1 further comprising discharge piping having an angled opening and a disconnect system comprising an angled face surrounding said pump discharge outlet for assuring mating and sealing of said pump discharge outlet to said angled opening of said discharge piping.
3. The submersible pump system of claim 2 further comprising a discharge elbow stand configured with said angled opening, and secured to said pump distribution plate and said discharge piping.
4. The submersible pump system of claim 2 further comprising a centering member positioned within said at least one opening in said pump distribution plate for receiving said pump inlet.

5. The submersible pump system of claim 4 further comprising a guide rail system connection to said pump distribution plate.

6. The submersible pump system of claim 5 wherein said guide rail system further comprises a guide rail bracket connected to said submersible pump.

7. The submersible pump system of claim 3 further comprising a guide rail system connected to said discharge elbow stand and positioned to guide movement of said submersible pump into and out of a well or tank.

8. The submersible pump system of claim 1 wherein said submersible pump has a suction side, and further comprising a suction head plate positioned on said suction side of said pump, said pump inlet being formed in said suction head plate.

9. The submersible pump system of claim 8 further comprising a centering member positioned in said at least one opening in said pump distribution plate, said centering member being configured to receive said pump inlet of said suction head plate.

10. The submersible pump system of claim 9 wherein said centering member has an angled inner surface and said pump inlet of said suction head plate has an outer angled surface for guiding said pump inlet into said centering member along said angled inner surface of said centering member.

11. The submersible pump system of claim 9 further comprising discharge piping having an angled opening and a disconnect system comprising an angled face surrounding said pump discharge outlet for assuring mating and sealing of said pump discharge outlet to said angled opening of said discharge piping.

12. The submersible pump system of claim 11 wherein said angled face of said pump discharge outlet is configured to retain a discharge seal ring positioned thereabout for sealing against said angled opening of said discharge piping.

13. A device for use in submersible pumping operations to enhance solids entrainment by a pump, comprising:
a pump distribution plate formed of a substantially linear plate portion of material having
a top surface and a bottom surface;
at least one opening through said linear plate portion sized to receive the inlet of a
pump; and
a plurality of guide members attached to and extending from said bottom surface of
said linear plate portion, said guide members being positioned relative to said at
least one opening to direct solids-laden fluid toward said at least one opening.

14. The device of claim 13 further comprising a submersible pump having a pump inlet sized for receipt in said at least one opening of said pump distribution plate and having a pump discharge outlet having an angled opening.

15. The device of claim 14 further comprising discharge piping connected to said pump distribution plate, said discharge piping having an angled opening positioned to matingly and sealingly engage said angled opening of said submersible pump discharge outlet.

16. The device of claim 14 further comprising a centering member positioned in said at least one opening of said pump distribution plate and configured to receive a pump inlet.

17. A submersible pump having a vertical disconnection system for drop in and lift out of the pump from a sump pit, well or tank, comprising;
a submersible pump having a central axis, a pump inlet and a pump discharge outlet,
said discharge outlet having an angled face surrounding a discharge opening,
the slope of said angled face being directed inwardly toward said central axis in the direction of said pump inlet.

18. The submersible pump of claim 17 wherein said angle of said angled face is between about five degrees and about forty-five degrees to the central axis.

19. The submersible pump of claim 17 wherein said angled face of said pump discharge is further structured to retain a discharge sealing ring.

20. The submersible pump of claim 17 wherein said angled face is positioned

on a discharge adaptor which is further configured with a contact surface for contacting a discharge outlet of said submersible pump.